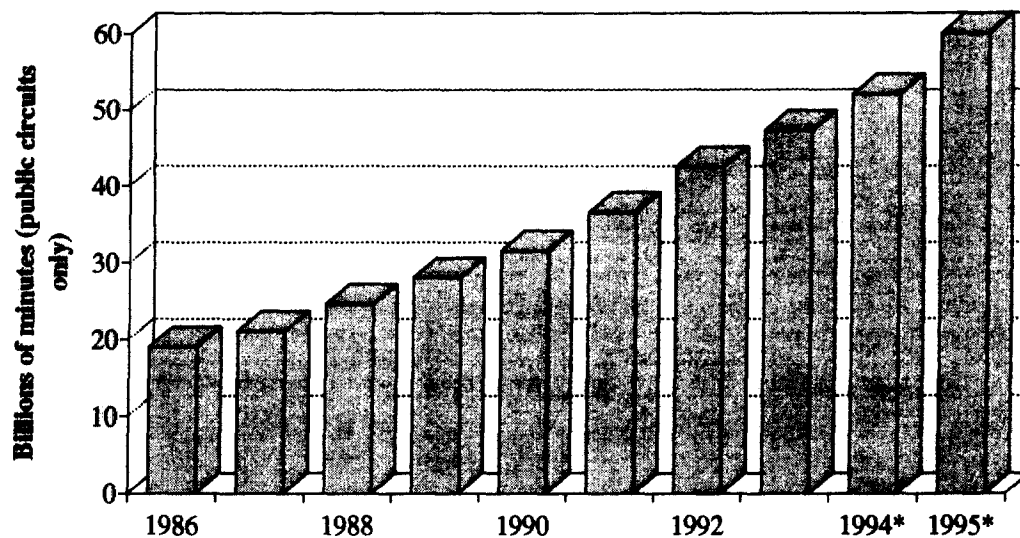


In contrast, the global basic services market is anticipated to experience more modest revenue growth (about six percent). As a consequence, a greater percentage of future global industry revenues will be generated by mobile/cellular and enhanced services.

International telecom markets are also growing rapidly worldwide and present tremendous opportunities for efficient service providers. Global telecom traffic volume has steadily increased since 1986 and is expected to increase to 60 billion minutes in 1995 and 80-100 billion minutes by the year 2000.⁵ (See Figure 1.2 below) Revenues have been increasing by 16 percent annually over the past few years, generating \$55.1 billion in billed revenue in 1992. International telecom service revenues are forecast to exceed \$70 billion in 1995.⁶ This trend strongly suggests that the long-term growth of U.S. telecom firms will increasingly depend on the U.S.-originated and foreign-originated international telecom market.

Figure 1.2: Worldwide Growth in International Traffic Volume. Source: TeleGeography



*Estimate

⁵ Over 90 percent of all international traffic is voice telephony.

⁶ Economic Strategy Institute estimate based on current growth trends and anticipated future price trends.

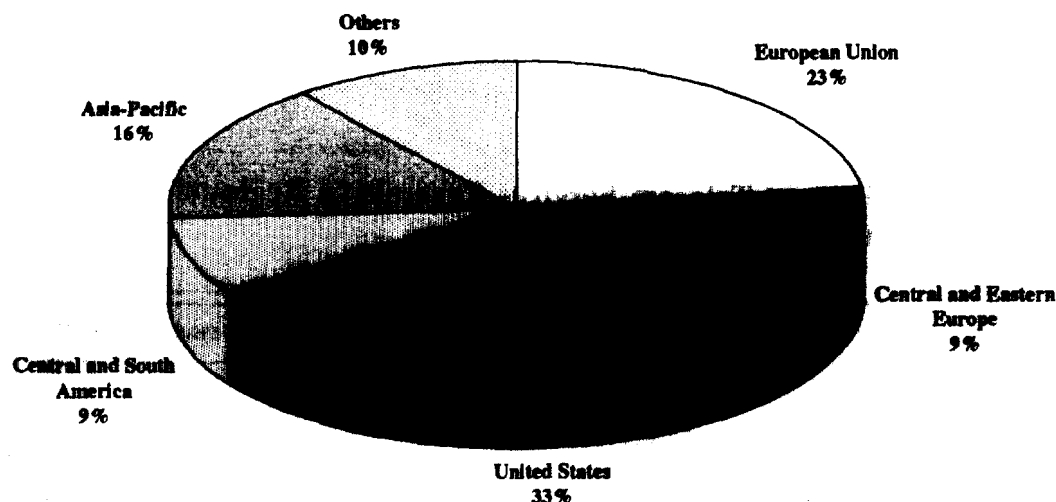
2. The United States in the Global Market

The United States is currently the single largest market for telecom services in the world, representing approximately 33 percent of the total global market for telecom services. Revenues from the U.S. market surpassed \$169 billion in 1992 and are predicted to exceed \$193 billion in 1994.⁷ The largest sectors, basic local and long distance services sectors, generated \$122 billion in 1992, and while the mobile/cellular and enhanced services accounted for only \$20 billion, they remain the fastest growing sectors, posting annual growth rates of 39 and 40 percent respectively.⁸ Figure 1.3 shows the relative size of the United States in the global telecom market in 1994.

⁷U.S. Department of Commerce, *U.S. Industry Outlook-Telecommunications Services*, (Washington, D.C.: Government Printing Office, January 1994), p. 29-1.

⁸*Ibid.*, p. 29-5.

Figure 1.3: Relative Size of the U.S. Telecom Services Market. Source: Asia-Pacific region data from "Financial Times Survey: International Telecommunications," *Financial Times*, 18 October 1993, p. 13; U.S. data from Federal Communications Commission, "Statistics of Communications Common Carriers," 1992/1993 Edition.; E.U. and Central and Eastern European data from Office of Technology Assessment, *U.S. Telecommunications Services in European Markets*, Washington, D.C.: GPO, August 1993.; Central and South America data from "Latin America," *Telecommunications International*, September 1992. (Hereinafter, Global Source Reference).

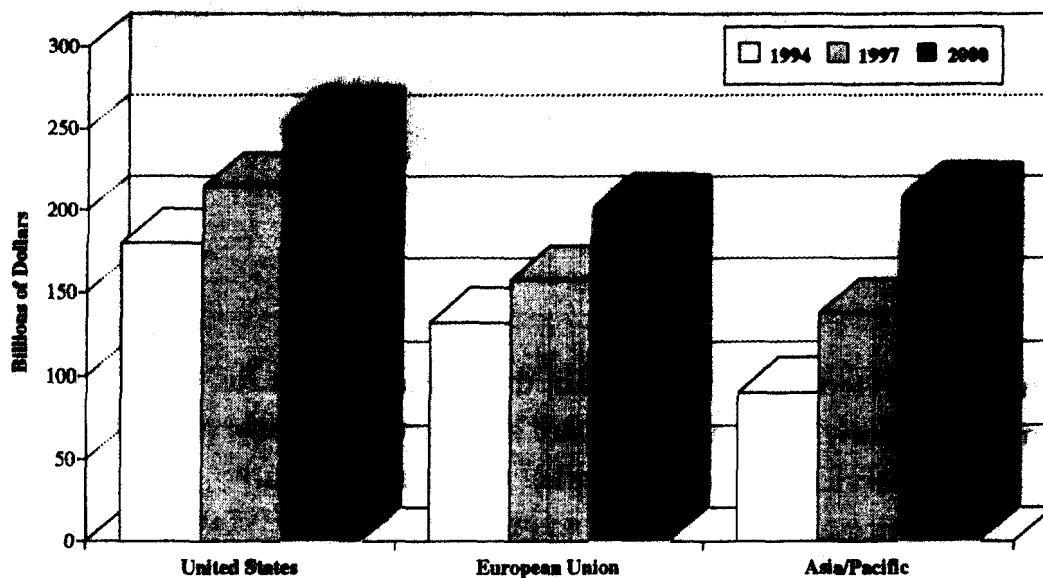


While the United States will remain the largest market for telecom services for some time, many foreign markets are experiencing greater growth. While some basic voice services in the U.S. market are nearing maturity, foreign markets are in their infancy and are expected to grow significantly. Table 1.1 below shows the anticipated growth in telecom services revenue in 1994 by region and Figure 1.4 tracks the forecast revenue generated by each market through the year 2000.

Table 1.1: Anticipated Growth in Telecom Services Revenue, 1994. Source: Global Source Reference.

Telecommunications Sector	United States	Europe⁹	Asia-Pacific¹⁰
<i>Local and Long Distance</i>	3.8 %	4-6%	4-10%
<i>International</i>	20%	13%	16%
<i>Mobile/Cellular Services</i>	39%	30%	50%
<i>Satellite Services</i>	20-30%	27%	20-30%
<i>Enhanced Services</i>	40%	20-30%	25%
All Sectors	7.7%	6-9%	15%

Figure 1.4: Forecast Telecom Services Revenue in Regional Markets. Source: Global Source Reference.



⁹All European estimates and calculations in this paper are for the 12 member states of the European Union, unless otherwise noted. The 12 member states are Belgium, Denmark, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, and the United Kingdom.

¹⁰All Asia/Pacific estimates are for the 14 largest telecommunications markets in the region: Australia, China, Hong Kong, India, Indonesia, Japan, Malaysia, New Zealand, Pakistan, Philippines, Singapore, South Korea, Sri Lanka, and Thailand.

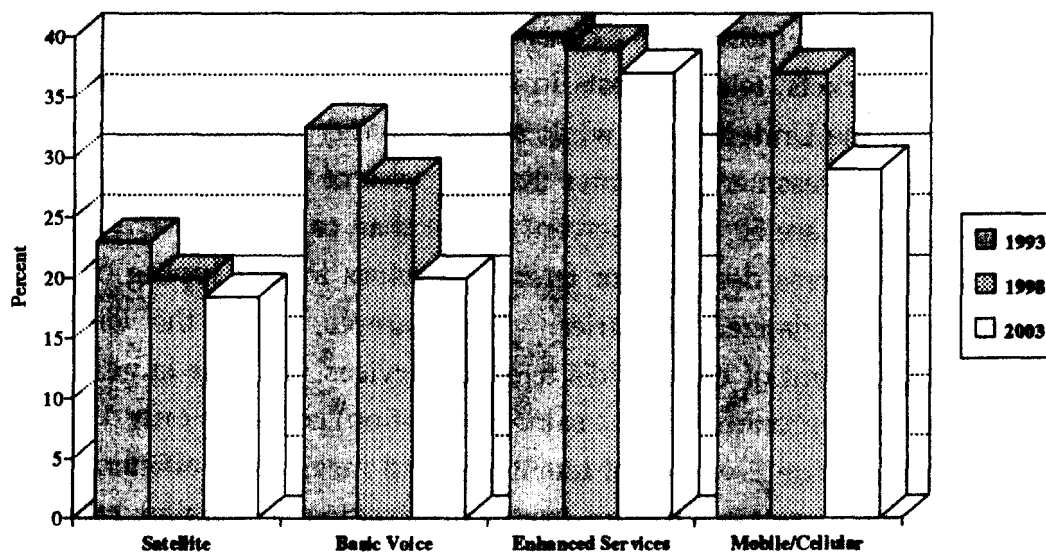
Furthermore, these forecasts may underestimate the opportunities in foreign countries by failing to account for the latent demand for telecom services in almost all foreign countries. As a consequence of inefficient providers operating in protected markets, telecom costs in foreign countries, on average, are much higher than in the United States while service quality remains poor. The Office of Technology Assessment estimates that the price of voice calls from Europe to U.S. headquarters are 50 to 100 percent higher than calls in the other direction.¹¹ High prices suppress demand for telecom services in developing countries, as well as in industrialized countries. For example, while the United States consumes 50 percent of the world's telecom services, the four largest European countries (with approximately the same population) consume only 19 percent of these services.¹² The presence of latent demand means that efficient U.S. firms could earn even greater revenue from participating in foreign markets than growth projections indicate.

As a result of the tremendous growth in foreign markets, the U.S. market will account for a smaller percentage of total global telecom service revenues in several sectors. (See Figure 1.5) Currently, the United States is the largest market for all telecom service sectors -- basic voice, mobile/cellular, satellite, and enhanced services. It accounts for approximately 32 and 25 percent of the global basic voice and satellite markets respectively, and 40 percent of the enhanced services and mobile/cellular markets. The United States will remain the primary global market for enhanced service, but its share of the global basic services and mobile/cellular markets is expected to fall to 20 and 28 percent, respectively, by the year 2003.

¹¹Office of Technology Assessment, *U.S. Telecommunications Services in European Markets*, (Washington, D.C.: Government Printing Office, August 1993), p. 96.

¹²*Ibid.*, p. 58.

Figure 1.5: U.S. Telecom Sectors as a Percentage of the Global Market.
Source: Global Source Reference



This is not to say that the United States will become an unimportant telecom market: the United States will remain a vital market for all global telecom providers. However, these trends indicate that U.S. telecom services industry's future growth will increasingly depend on exploiting foreign markets.

B. Growing Market Opportunities

1. Basic Voice Services

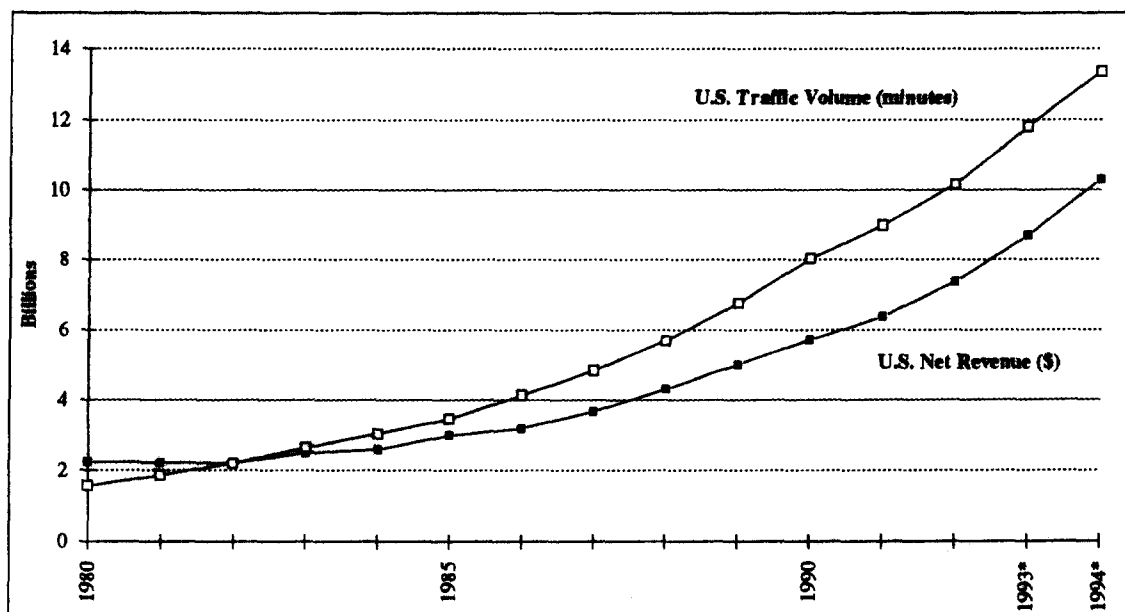
a. The United States

Growth in basic voice services can occur in one of two ways: a network can be expanded to provide telecom services to more people, or people can be encouraged to increase their use of existing services. The U.S. telephony services market (particularly the local and long distance market) is one of the most ubiquitous and mature in the world -- 94.2 percent of all households received basic service and new access line installation slowed to 1.7 percent in 1993.¹³

¹³United States Telephone Association, *Telephone Facts*, (Washington, D.C.: USTA, 1993), p. 3.

The international telecom services market is the fastest growing basic voice service in terms of revenue and traffic growth in the United States. The number of billed international minutes has been growing 16 percent annually since 1990 compared with 6.9 percent per annum growth in local and domestic long distance services.¹⁴ In 1994, basic local and long distance service revenues are anticipated to grow by three and six percent, respectively, compared with 19.5 percent in international service.¹⁵ U.S. net revenues for international services exceeded \$7.4 billion in 1992 compared to \$2.2 billion in 1982.¹⁶ Figure 1.6 outlines the growth of international service net revenues and traffic volume.

Figure 1.6: Growth of U.S. International Service Net Revenue and Traffic Volume. Source: *Ibid.* p. 9.



*Estimate

As a consequence, a greater proportion of U.S. telecom firms' net revenues is being generated by providing U.S.-originated international services than ever before. In 1982, international services generated only five percent of total revenues in the U.S. telecom industry. International service provision now accounts for over ten percent of the industry's revenues and could generate as

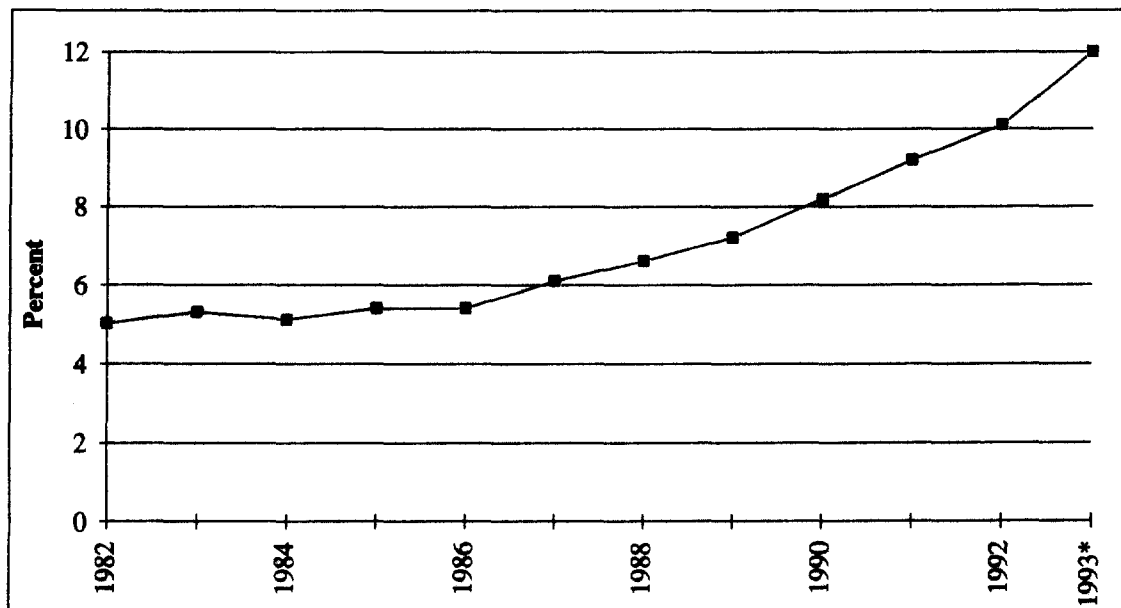
¹⁴*Ibid.*

¹⁵*Ibid.*

¹⁶*Ibid.* p. 12.

much as 15 percent of total industry revenues by the year 2000.¹⁷ Figure 1.7 chronicles the growth of international service revenues as a percentage of the total revenues of U.S. telecom services firms.

Figure 1.7: International Service Net Revenues as a Percentage of Total Domestic and International Toll Revenues. Source: Federal Communications Commission, *Trends in the International Communications Industry*, March 1994, p. 12.



*Estimate

b. The European Union

The E.U. basic voice services market produced \$75 billion in revenues in 1992 and is expected to grow by four to six percent per year. Growth in this market will come primarily from increased use of the existing wireline network but also by network expansion in less developed member states (particularly Germany). Demand has been significantly stifled by high prices, irregular billing practices, installation delays, and lower service quality relative to the United States.¹⁸ Average annual per capita consumption of telecom services in European Union

¹⁷Federal Communications Commission, *Trends in the International Telecommunications Industry*, (Washington, D.C.: Federal Communications Commission, March 1994), p. 12.

¹⁸Office of Technology Assessment, *U.S. Telecommunications Services in European Markets*, (Washington, D.C.: Government Printing Office, August 1993), p. 96.

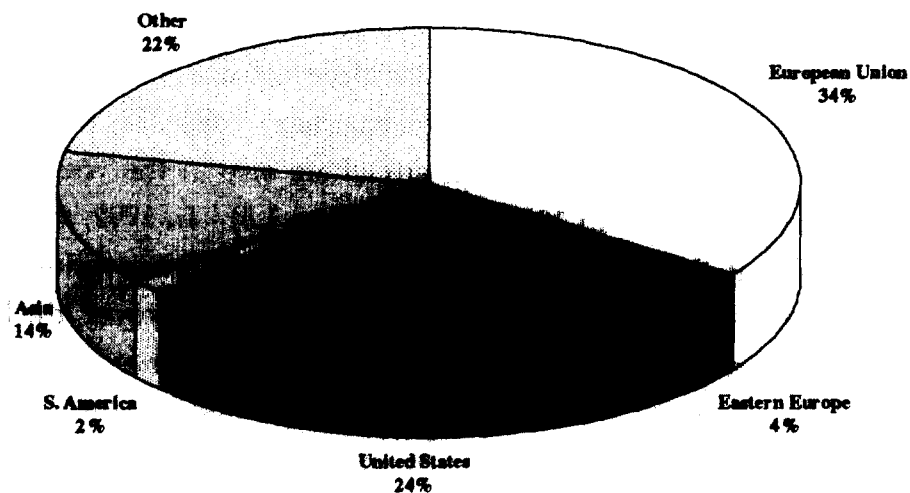
member states (\$217) is less than half the comparable U.S. figure (\$460).¹⁹ As prices decline in the E.U. market, growth in demand and revenues is expected to increase substantially, and efficient firms could stimulate and capture a large part of this latent demand.

The basic voice service with the greatest growth potential in the European Union is the international market. More international calls, 34 percent in 1992, originate in the European Union than anywhere else in the world, generating \$10 billion in net revenues in 1992.²⁰ (See Figure 1.8) In 1992, the U.S. market grew by 16 percent, the E.U. market experienced 14 percent revenue growth, and similarly, the Asia-Pacific market grew by 12 percent. However, the high cost of telecom services in member states has significantly suppressed usage, especially among business customers. These high costs have also spurred the growth of private international telecom networks which bypass the expensive and inefficient monopoly carrier. Demand for these private networks is expected to expand at least twice as fast as demand for the traditional public switched network in Europe. These trends suggest that foreign international telecom traffic will continue to expand throughout the decade and that efficient, U.S. firms would profit handsomely by entering foreign markets.

¹⁹Economic Strategy Institute estimate based on 1992 E.U. and U.S. aggregate expenditure and population figures. It is also worth noting that cultural differences also affect average phone usage. U. S. daily average usage would undoubtedly remain higher than most other nations if phone charges were similar. However, the significant difference in phone use can not be explained entirely by cultural differences.

²⁰Net revenue, as opposed to billed revenue, is the appropriate figure when discussing the international market. International telecommunications providers must pay foreign firms to carry the call from the international transmission facility to the final destination. Net revenue represents the part of billed revenue that domestic carriers retain after paying foreign firms for completing the call. This system is roughly similar to the access charges the long distance must pay the Baby Bells for the connection of a long-distance call.

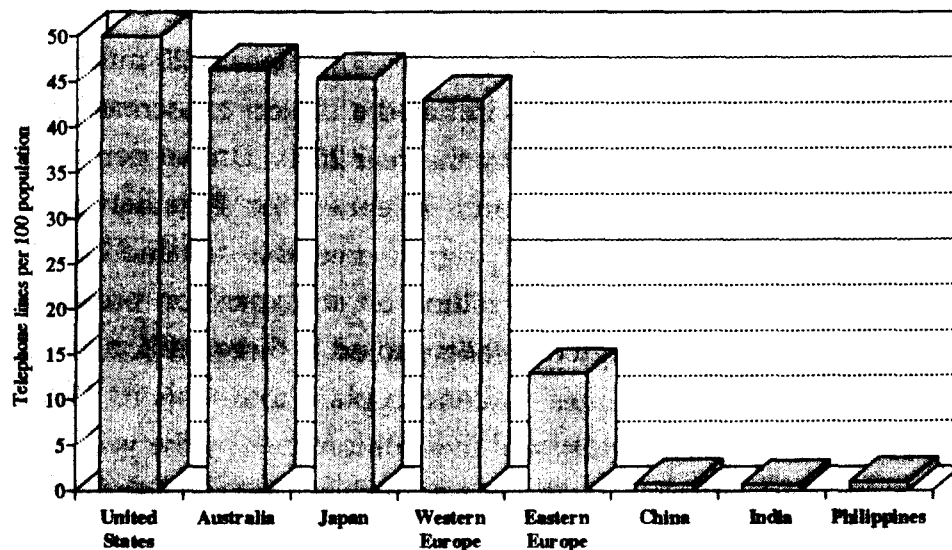
Figure 1.8: Origin of International Telecommunications Traffic. Source: TeleGeography, Inc. as reported in "Financial Times Survey: International Telecommunications," *Financial Times*, 18 October 1993.



c. Developing Countries

In contrast with the United States, most developing countries currently operate antiquated wireline networks that are not comprehensive, provide low-quality service, and fail to meet existing demand for telecom services. The great disparity between the telecom networks in developed and developing countries is reflected in national telephone penetration rates (the number of phone lines per 100 people). Figure 1.9 shows the difference in penetration rates and also indicates the need for network expansion.

Figure 1.9: Line Penetration in Developed and Developing Countries, 1991.
 Source: Organization for Economic Cooperation and Development, *Communications Outlook 1993*, Paris, France, p. 157.



In many parts of the developing world, low-quality service is an accepted fact of life. In Eastern Europe for example,

"Lines only marginally reliable for basic voice service are unreliable for enhanced and facsimile transmission. The number of annual faults per 100 lines ranged from 18 (in Croatia) to 97 (in Romania); by contrast, reports of faults in Sweden were ten per 100 lines, in France nine, and in the United Kingdom 15. In Romania, 70 percent of calls were not completed, and in Hungary, 45 percent of local calls failed to go through."²¹

Even obtaining a telephone line is a difficult and lengthy process in many countries. In countries such as the Philippines, Sri Lanka, and Cambodia, people wait up to ten years or more to obtain a telephone line. The Central and Eastern Europe average waiting time for telephone installation is 11.5 years, compared with ten days in the United States.²²

²¹Office of Technology Assessment, *U.S. Telecommunications Services in European Markets*, (Washington, D.C.: Government Printing Office, August 1993), p. 114.

²²*Ibid.*

In an effort to improve their networks, many developing countries have initiated or announced plans to upgrade and expand their telecom infrastructure. Developing countries around the world are realizing the importance of an advanced telecom infrastructure to global competitiveness and economic growth. China, where the waiting list for telephone lines is 20 million lines and growing by two million annually, has initiated a project to increase the number of telephone lines to 100 million lines by the year 2000. Unmet demand in Brazil is currently 2 million phone lines, and Telebras, the Brazilian government-owned monopoly, has launched a campaign to meet this demand by 1999. India has committed itself to spending \$15 billion on an expansion project to reduce their waiting list which, although officially quoted at three million, is believed to be between 40 and 60 million lines. Indonesia plans to double its 1992 line base by the year 1995 and add an additional five million lines by the year 2000. Other countries with similarly ambitious projects include Russia, Saudi Arabia, and Poland, to name a few.

The tremendous expansion of basic telecom networks in developed countries presents huge opportunities for both telecom equipment manufacturers and basic service providers. Countries in the Asia-Pacific region will spend between \$90 and \$120 billion this decade to upgrade their switching and transmission facilities, in addition to the cost of adding 100 million new telephone lines.²³ The World Bank estimates that it will cost Asia's lower income countries almost \$400 billion to reach a telephone density of ten lines per 100 inhabitants -- a level less than one quarter the phone density of Western Europe.²⁴ Basic telecom services revenues in developing countries are expanding rapidly as a result of infrastructure enhancement and expansion projects to create reliable, comprehensive national networks. In Singapore, for example, as a result of infrastructure expansion and overall economic growth, telecom services revenues are increasing by 15-20 percent annually.²⁵ In China, revenues are growing 50-55 percent annually.²⁶

²³World Bank, *Telecommunications Sector Reform in Asia: Towards a New Pragmatism*, paper number 232, p. ix.

²⁴*Ibid.* p. 3.

²⁵"Review and Preview: Singapore Telecom Shares Still Look Pricey," *Barrons*, 5 September 1994.

²⁶Ken Zita, "The Last Chinese Prize," *The Asian Wall Street Journal*, 19 September 1994, p. 2B.

2. Mobile Communications Markets

The surge in demand for mobile communications services is revolutionizing the way many countries communicate. By the end of the decade, half of all telephone calls worldwide are expected to originate or terminate on a mobile phone. Mobile communications is currently the fastest growing telecommunication service sector in the world. The United States is the largest market for mobile communications, claiming 28 million subscribers for cellular, paging, and specialized mobile radio services which generated \$10 billion in revenues in 1992. This market is expected to grow by 36 and 39 percent in revenues and subscribers respectively in 1993.²⁷ By the end of the decade, the U.S. Commerce Department expects the U. S. cellular subscriber base alone to top 35 million.²⁸

European Union member states claim 16 million mobile communication service users generating \$5.8 billion in revenues in 1992. Throughout the European Union, annual subscriber growth rates have averaged 30 to 40 percent in member states over the past four years and this growth is expected to continue for the remainder of the decade.²⁹ The European market should generate \$15.9 billion in revenues by the year 2000 and include 19.1 million cellular subscribers and 40 million total mobile communication subscribers.

Japan is the third largest mobile communications market, boasting 1.64 million cellular subscribers in 1992, despite a regulatory environment which has discouraged the use of mobile, particularly cellular, communications.³⁰ The Japanese government has announced its intention to encourage the use of mobile communications services and, as a consequence, the subscriber base is expected to expand rapidly over the next decade. By 2010, 38 million cellular subscribers are expected in Japan. Figure 1.10 shows the anticipated subscriber base from these three regions.

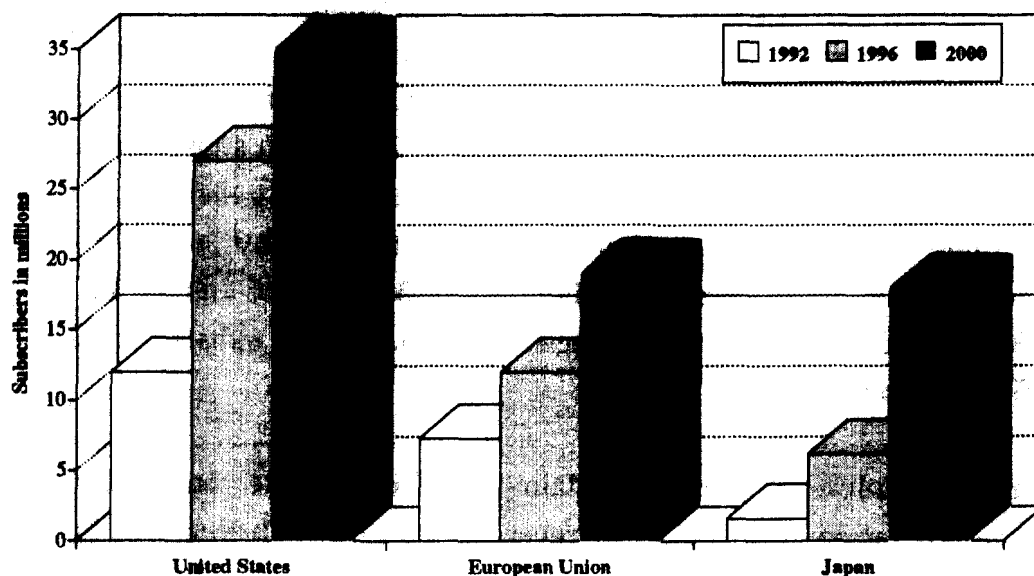
²⁷U.S. Department of Commerce. *U.S. Industry Outlook 1994-Telecommunications Services*, January 1994, p. 29-1.

²⁸*Ibid.* p. 29-13.

²⁹European Commission, *Toward the Personal Communications Environment: Green Paper*, May 1994, p. 4.

³⁰Asia Pacific Economic Council, *The State of Telecommunications Infrastructure and Regulatory Environment of APEC Economies*, Volume 1, (November 1993), p. 166.

Figure 1.10: Predicted Regional Cellular Subscribers. Source: U.S. data from U.S. Department of Commerce. *U.S. Industry Outlook 1994-Telecommunications Services*, January 1994. European and Japan data from "Financial Times Survey: International Telecommunications," *Financial Times*, 18 October 1993, p. 13.



Despite the impressive cellular growth rates in developed nations, the fastest growing cellular markets are in developing countries. In developed countries, mobile communication is still viewed as a personal luxury; in developing countries, where the wireline service is unreliable and unavailable in many locations, mobile communication is becoming a necessity. Several developing countries may leapfrog the wireline stage of development altogether and install wireless networks to handle all voice telecom traffic. While mobile services in the United States will be a secondary form of communication (after the wireline system), mobile communications will be the primary form of communication in much of South and Central America, Central and Eastern Europe and the Asia-Pacific region.

The Asia-Pacific region is the world's fastest growing mobile/cellular market. Annual growth in regional cellular subscriber volume from 1989 to 1992 was 80 percent and now remains steady at 50 percent, while paging services continue

their rapid expansion throughout the region.³¹ Mobile service demand in Singapore is expected to quadruple this decade. In Hong Kong alone, there are over 800,000 paging service subscribers, equaling the subscriber total in the United Kingdom, with an estimated 35,000 subscribers being added monthly.³² China, already the world's fourth largest mobile/cellular market, will boast 1.2 million cellular subscribers and 10 million pager users by the end of this year. It is predicted that by the year 2000, China will have 10 million cellular and 30 million pager subscribers.

Similarly, South and Central American cellular markets are also growing rapidly. Cellular markets in South and Central America have experienced 45 percent annual growth over the last five years.³³ The Venezuelan cellular market has been growing at a rate of 200 percent per year and shows no sign of slowing.³⁴ Mexico's subscriber base has grown from 60,000 in 1990 to 311,000 in 1992, an annual growth rate of 128 percent. The Asia-Pacific and South and Central American markets are expected to continue to be the fastest growing markets for wireless telecom services in the world through the remainder of the decade.

Central and Eastern European countries represent another potentially lucrative cellular market. The poor state of wireline networks in the region means that, in many cases, it is more economical to build a new cellular network from scratch than to rebuild the existing network. Average time usage in Central and Eastern European countries is several times higher than in the United States because many European customers do not have access to a wireline network. In fact, almost all foreign investment in the region has been directed at establishing mobile communication networks.

³¹Paul Taylor, "Subscriber Base Now 23 Million," *Financial Times*, 18 October 1993, p. 13.

³²*Ibid.*

³³International Technology Consultants Inc., "Market Trends," *Eastern European & Former Soviet Telecom Report*, 1 April 1994.

³⁴*Ibid.*

3. Satellite Services

a. Domestic Satellite Systems

Satellite services are anticipated to grow significantly in the future, particularly in countries with inadequate wireline networks. By the turn of the century, satellite technology will provide the final link in the globalization of the Industry. Satellites currently play an important role by providing voice, data, and video services across continents as well as communications in areas with mountainous terrain or inadequate wireline facilities. For example, US West services 43 rural Wyoming communities with satellite-based phone service. By complementing existing cellular and wireline networks, proposed satellite projects could make personal communication networks virtually ubiquitous. Satellite services are also expanding to provide two-way, cost-effective voice and data services, radio-determination services, and television services direct to the home via direct broadcast satellites (DBS).

The European market for satellite communication is expanding rapidly and is expected to grow from \$350 million in 1991 to \$1.3 billion by 2001. Unlike the United States, whose DBS industry has had a slow start, Europe's DBS industry is competitive and profitable. Penetration rates of satellite television are expected to grow from a three percent average across Europe in 1990 to 16 percent by 1995. Eutelsat, a European consortium, also hopes to expand its satellite industry by providing services to Russia and Central and Eastern Europe.

Many developing countries rely heavily on satellite services and are planning to increase these services significantly. Lacking adequate wireline facilities and/or because of particular geographic characteristics, many are finding it more cost effective to use satellites to provide local, long distance, and international services.³⁵ Honduras, for example, is participating in a joint venture with PanAmSat to extend service to remote rural communities. Similarly, Indonesia will employ satellites to provide the 13,700 islands of the Indonesian archipelago

³⁵For example, countries in mountainous regions (Chile), countries with many islands (Indonesia), or nations with dispersed populations.

with domestic telecom services, and Chile recently deployed a new satellite system to provide domestic services in the Andes.³⁶

b. International satellite services

International satellite services are divided into two types: fixed and mobile satellite services. International fixed satellites transmit signals to fixed earth positions, e.g., TV station satellite dishes. International mobile satellites transmit signals to mobile communication networks, e.g., maritime vessels, airplanes, and mobile personal satellite terminals.³⁷

The international fixed satellite service (FSS) industry has experienced significant growth in recent years. U.S. revenues from international FSS reached \$706 million in 1993, up 22 percent from 1992, and are expected to grow 25 percent in 1994.³⁸ The bulk of U.S. international FSS revenues are generated by Intelsat (the International Telecommunication Satellites Organization), a consortium of 126 countries (including the United States) providing satellite services to 180 countries.³⁹

The international mobile satellite services (MSS) industry has generated modest revenues, but is expected to experience tremendous growth in the mid 1990s. The bulk of U.S. revenues from international MSS originates from INMARSAT (the International Maritime Satellite Organization), a global network of satellites jointly operated by a consortium of 66 countries. U.S. INMARSAT revenues reached \$145 million in 1992, representing a 25 percent annual growth rate from 1990 revenues. Over the next four years, a flurry of new satellite systems dedicated to MSS will be launched. These satellites will tap into the burgeoning

³⁶"Mitsui Bussan Kaisha Ltd. for Work on Indonesian Telephone Network," *Comline News Service*, 5 July 1994.

³⁷Internationally, fixed satellites services (FSS) primarily include basic telecom traffic (e.g., basic telephony) but also provide private line and business services, broadcast (video transmission), and data transmission. International mobile satellite services (MSS) include cellular telephony, positioning and navigation services, and digital radio.

³⁸U.S. Department of Commerce. *op. cit.* p. 29-15.

³⁹This consortium employs 20 satellites cooperatively used by all signatories for international telecom transmission and plans to launch an additional 12 satellites over the next two years. In addition to Intelsat, there are two privately-owned U.S. international satellite systems, PamAmSat and Columbia Communications, which service the United States. PamAmSat provides mainly video broadcasting services and business communications to the Western Hemisphere and Europe. Columbia Communications serves U.S. military communications in the Pacific Basin.

market for global paging, in-flight phone service, video and data transmission, and international mobile voice telephony.

The market for global mobile telephony service has attracted several consortia which are proposing to deploy low earth orbiting (LEO) and middle earth orbiting (MEO) satellite systems.⁴⁰ LEO and MEO systems are capable of receiving, switching, and transmitting signals from any mobile station in the world. These systems will complement the existing terrestrial cellular networks and could eventually allow the wireless network to bypass the wireline network completely.

4. Enhanced Services

Enhanced services include electronic mail, on-line database, and enhanced processing services. Due to the relative infancy of these services, the United States, European Union, and Japan will continue to be the largest and fastest growing markets for enhanced services throughout the remainder of the decade. The U.S. enhanced services industry will generate \$18 billion in revenues in 1994, representing approximately 40 percent of a \$45 billion world market.⁴¹ Revenues for enhanced services in the European Union were \$6.3 billion in 1992 and are expected to increase between 20 and 30 percent annually.⁴² Japan's enhanced services market is expected to experience similar growth in both revenues and demand.

5. The Market for Global Seamless Services

There is also tremendous demand for private global telecom networks. Many multinational corporations are turning to telecom firms to run their private, in-house telecom networks. Currently, international businesses create private

⁴⁰There are currently six U.S. projects to build LEO and MEO systems: Motorola's Iridium, Loral's GlobalStar, TRW's Odyssey, Constellation Communications' Aries plan, Ellipsat, and Teledesic, the project conceived by Microsoft's Bill Gates and Craig O. McCaw. Iridium, the largest of these projects, plans to launch 66 LEO satellites by 1998 to provide global communications. These systems will compete against satellite constellations from France, Mexico, Russia, and Belgium.

⁴¹Office of the United States Trade Representative, *op. cit.*

⁴²Office of Technology Assessment, *U.S. Telecommunications Services in European Markets*, (Washington, D.C.: Government Printing Office, August 1993), p. 71.

networks through independent agreements with separate carriers in each country: no one carrier can meet all telecom needs of multinationals because of foreign barriers to U.S. entry. (This is the subject of Chapter Three.) In many cases, these carriers have different technical standards and equipment, making it extremely difficult for international businesses to operate efficient, trouble-free private networks. Multinational firms increasingly want to buy their services in a single package from a single vendor, rather than dealing with an international patchwork of private and government-operated telecom firms.

The last two years have seen a flurry of international joint venture agreements, between firms in different countries, to supply seamless services. These ventures will typically supply the following services:

- Global, virtual private network services for voice, switched data and conferencing,
- Global, managed data services based on low and high speed packet switching and frame relay,
- Global applications such as messaging, EDI (electronic data interchange), and audioconferencing,
- Facilities management and full enterprise network management.

The market for this global service is estimated at \$10 billion and could be worth more than \$25 billion by the end of the decade.⁴³ In the past year, a number of global alliances have been announced to exploit this lucrative market. (See Table 1.2) In addition to the alliances listed, several other telecom firms are actively searching for global partners, including the United Kingdom's Cable and Wireless.

⁴³Cindy Skrzycki, "Remaking the World of Telecommunications," *The Washington Post*, 7 June 1993, p. A11.

Conclusion

Future revenue growth and employment in the U.S. telecom services industry will increasingly depend on the ability of U.S. firms to take advantage of opportunities in foreign markets.

The opportunities in foreign markets are impressive and growing at an unprecedented pace. Furthermore, international businesses are demanding that telecom services firms operate seamless global networks providing services that transcend traditional, national borders. The success of the U.S. telecom services industry will in large part depend on its ability to compete head-to-head with its foreign counterparts both in the United States and in foreign countries.

Table 1.2: Major Global Telecommunications Alliances. Source: Office of Technology Assessment, *Electronic Enterprises: Looking to the Future*, OTA-TCT-600 (Washington, D.C.: U.S. GPO, May 1994,) p. 77.

Alliance	Partners	Area of Partner Responsibility
World Partners	AT&T	U.S. and Others
	KDD	Japan and parts of Southeast Asia
	Singapore Telecom	Singapore and parts of Southeast Asia
	Unitel (Canada)	Canada
	Korea Telecom	Korea and other parts of Southeast Asia
	Telefonica de España (Spain)	Europe and parts of Central and South America
	Telekom NZ*	New Zealand
	Telstra (Australia)*	Australia
	Unisource Telia (Sweden) PTT Switzerland PTT Holland UBN SITA	
Concert	MCI	North America
	British Telecom	All territory outside North America
	Nippon Information and Communication Corp.	Will market Concert's product in Japan
No Official Name. (Pending Approval)	Sprint	North America and Other
	Deutsche Bundespost Telekom	Europe and Other Areas
	France Telecom	Europe and Other Areas

*Associate member.

CHAPTER II: U.S. PARTICIPATION IN FOREIGN MARKETS

A. Can They Compete?: The International Competitiveness of U.S. Telecom Services Firms

The U.S. government has been at the forefront of encouraging competition in the domestic telecom services market and, as a result, U.S. telecom services providers have become the most competitive in the world. Intense domestic competition has forced U.S. firms constantly to innovate and improve their efficiency. While the United States has encouraged competition in all telecom sectors except the local exchange, the overwhelming majority of countries have discouraged competition and maintained a public monopoly that has no incentive to become more efficient. The following is a brief discussion of the history of competition in the United States and the resulting world class competitiveness of U.S. firms.

1. The History of U.S. Telecom Competition

The entire domestic telecom network was once regulated as a natural monopoly, almost exclusively operated by AT&T. AT&T maintained a monopoly in the manufacturing of telephone equipment and in the provision of all services over the telephone network. In 1968, competition was introduced in the manufacturing of customer premises equipment (CPE), the equipment that connects households and businesses into the telephone network (e.g. telephones and faxes). This changed the equipment component of the network from a service to a purchasable good and hence reduced telecom services to local, long distance, and international services.

The application of microwave technology during the 1950s changed the underlying cost structure of the industry and made it possible for more than one firm to compete profitably in the long distance market. Throughout the 1960s and 1970s, however, competition in the long distance market was limited by AT&T's monopoly control of the local exchange. As a consequence, the Department of Justice (DOJ) filed an anti-trust suit in 1974 charging that AT&T had used its monopoly control of the local exchange to impede competitive entry into the long distance market. Eight years later, a consent decree known as the Modification of Final Judgment (MFJ) was issued, which ordered AT&T to divest itself of the Regional Bell Operating Companies (RBOCs) that provided local exchange service. The RBOCs were consolidated into the seven Baby Bells (or Regional Holding Companies, RHCs) and regulated as natural monopolies. The goal of the MFJ was to separate AT&T's competitive and non-competitive activities. The RBOCs were restricted from entering three lines of business deemed competitive, and AT&T was prohibited from electronic publishing and re-acquiring an RBOC.⁴⁴ (See Table 2.1)

⁴⁴Three RHCs have recently petitioned Judge Green to vacate the MFJ.

Table 2.1: Modified Final Judgment Line-of-Business Restrictions. Source: AT&T.

Firm	Line of Business Restriction	Current Status of Restriction
<i>AT&T</i>	Cannot engage in electronic publishing.	Lifted in 1989
	Cannot re-acquire a RHC.	In Effect.
<i>RBOCs</i>	Cannot manufacture telecom network equipment or customer premise equipment (CPE).	In Effect
	Cannot offer information services (such as electronic yellow pages).	Lifted in Full in 1991
	Cannot offer long distance or international services.	In Effect

Divestiture was not the only impetus to competition in the United States -- the Federal Communications Commission (FCC) has also encouraged the development of competition in the long distance market. Realizing that the sheer size and scope of AT&T made it hard for new firms to compete, the FCC applied the dominant carrier status to AT&T and the RHCs. Firms with dominant carrier status are subject to more stringent regulations (e.g. submit traffic, revenue, and tariff data more frequently, request permission for network expansion) than firms without the classification. The increased data and authorization requests allowed the FCC to monitor AT&T's actions and ensured that AT&T did not abuse its dominant market position to disadvantage new entrants. This regulation aided the development of significant competition in the U.S. long distance market, and consequently fostered the competitiveness of U.S. firms.

Divestiture spurred the development of the most competitive long distance market in the world, with more than 500 companies competing in the U.S.